Lower Gastrointestinal Bleeding & Intussusception

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KEYWORDS

• Pediatric • Gastrointestinal bleeding • Intussusception • Hydrostatic reduction
• Pneumatic reduction

KEY POINTS

- Lower gastrointestinal bleeding in children is uncommon.
- The differential diagnosis is largely guided by the age of the patient.
- Surgical emergencies in the neonatal period, such as necrotizing enterocolitis, midgut volvulus, and Hirschsprung disease, can present with gastrointestinal bleeding.
- Ileocolic intussusception is a common cause of gastrointestinal bleeding.
- Radiologic reduction of an ileocolic intussusception is first-line therapy for a patient without peritonitis or hemodynamic instability.

LOWER GASTROINTESTINAL BLEEDING

Epidemiology

Although data remain limited regarding the incidence of lower gastrointestinal (GI) bleeding (LGIB) in children, a Healthcare Cost and Utilization Project Nationwide Emergency Department Sample analysis from 2006 to 2011 estimated that there were a total of 437,000 emergency department (ED) visits associated with GI bleeding in the pediatric population (children up to 19 years old).[1] Of these visits, 20% were identified as upper GI bleeding, 30% were LGIB, and the remaining 40% were not specified. By age, 38% of the patients were younger than 5 years, 23% were between 5 and 15 years, and 39% were between 15 and 19 years. Interestingly, only 11.6% of the ED visits required hospitalization with most being treated either in the ED or as an outpatient.

Clinical Presentation and Initial Evaluation

Patients with LGIB can present with nausea, vomiting, diarrhea, and abdominal pain. A complete history should be obtained, including the duration and amount of bleeding

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and the color and consistency of the blood. Although a well-appearing infant or child is relatively reassuring, the clinical condition can deteriorate precipitously in the face of ongoing bleeding. Initial physical examination and evaluation should focus on ascertaining the child's hemodynamic condition and promptly initiating resuscitation if indicated. A thorough physical examination should be performed, including inspection for anal fissures; a rectal examination for prolapse, polyps, or masses; and stool guaiac testing. The abdomen should be assessed for peritonitis and the presence of an abdominal mass. The findings of petechiae or bruising on the skin may suggest an underlying coagulopathy.

The initial diagnostic test of choice for children presenting with LGIB largely depends on their age, clinical status, and the likelihood for various underlying pathologic conditions. If the source of the bleeding (lower vs upper tract) is unclear, a nasogastric tube can be placed for lavage. Abdominal plain radiographs, particularly in the neonatal and infant population, can aid in the diagnosis of underlying conditions such as necrotizing enterocolitis (NEC) or Hirschsprung disease. Ultrasonography is also helpful in identifying underlying conditions such as intussusception. Although endoscopy (upper and lower) requires general anesthesia, it can help in both identifying the lesion and providing an opportunity for intervention.[2] Red blood cell scintigraphy and angiography can also aid in identifying the source of bleeding, although slow bleeding is often difficult to identify with these modalities.

Differential Diagnosis

The differential diagnosis for LGIB in the pediatric population is broad. However, it can be quickly narrowed based on the age group of the patient and the clinical presentation. It is helpful to categorize the patients into 3 groups to assist in the diagnosis: neonatal, infant and toddler, and school age (**Box 1**).

NEONATAL

LGIB in the neonatal population presents a diagnostic challenge because of the broad range of etiologies, from benign conditions, such as swallowed maternal blood to more concerning conditions, such as midgut volvulus or NEC. As mentioned, the clinical presentation (well child vs distressed) and the hemodynamic status of the patient are essential to effectively diagnose and treat the underlying condition. Although not exhaustive, the following is a summary of the common conditions that can present with LGIB in the neonates.

MIDGUT VOLVULUS

One of the true surgical emergencies in pediatrics, midgut volvulus, is an obstructive condition of the small intestines caused by twisting of the bowel around the axis of the mesentery. In addition to intestinal obstruction, the mesenteric blood vessels are kinked, resulting in ischemia to the midgut that can manifest as LGIB. Bilious emesis in an infant is alarming and should prompt an expeditious workup for midgut volvulus. Midgut volvulus typically occurs in the setting of intestinal malrotation caused by failed rotation and fixation of the gut during in utero development. Melena or hematochezia is present in up to 20% of cases and is an ominous sign suggestive of gut ischemia. Similarly, abdominal wall erythema caused by bowel ischemia is a late and concerning finding. The diagnosis is established with an upper GI contrast study that shows proximal duodenal obstruction (midgut volvulus) or abnormal rotation and positioning of the duodenal-jejunal junction (malrotation).[3,4] Emergency surgical intervention with a

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